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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,514	10/26/2006	Kathirgamasundaram Sooriakumar	207,468	1169

7590 06/12/2007
ABELMAN, FRAYNE & SCHWAB
10th Floor
666 Third Ave.
New York, NY 10017

EXAMINER

PATEL, REEMA

ART UNIT	PAPER NUMBER
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2812

MAIL DATE	DELIVERY MODE
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06/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/568,514

Applicant(s)

SOORIAKUMAR ET AL.

Examiner

Reema Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 16 is/are rejected.
- 7) ☒ Claim(s) 6-15 and 17-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/17/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) was submitted on 11/17/06. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

Claim Objections

3. Claims 6-15 and 17-20 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chong et al. (WO 03/065050 A2) in view of McNeil et al. (U.S. 6,845,670 B1).
6. Regarding claim 1, Chong et al. discloses the following claimed elements:
 - A method of fabricating an accelerometer including the steps of:

- Providing a first wafer of insulating material having a first major surface and a second major surface (page 8, lines 3-6);
- Etching at least two cavities in the first major surface of the first wafer (page 8, lines 23-25; Fig. 3);
- Providing a second wafer of semi-conducting material (page 8, lines 27-28);
- Bonding the first major surface of the first wafer to the first major surface of the second wafer (page 8, lines 27-30);
- Depositing and patterning metallization on the second major surface of the second wafer (page 9, lines 14-16);
- Depositing and patterning a masking layer on the second major surface of the second wafer (page 9, lines 18-26);
- Etching the second major surface of the second wafer to form the accelerometer (page 9, line 28 – page 10, line 2);
- Removing the masking layer from the second major surface of the second wafer (page 10, lines 4-7).

7. Yet, Chong et al. does not disclose forming an accelerometer which has a third sensor to detect acceleration in a third (out-of-plane) axis and hence does not disclose patterning metal onto the first major surface of the first wafer to form electrical connections for a third accelerometer. However, McNeil et al. discloses patterning metal onto a wafer to form electrodes so as to produce an accelerometer to sense acceleration in the out-of-plane or z-axis (col 1, lines 37-57). Therefore, it would have

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been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Chong et al. with patterning metal on a first wafer so as to provide an additional acceleration sensor to sense acceleration in the z-axis.

8. Regarding claim 2, Chong et al. discloses the first wafer is an insulating material (page 3, lines 8-9).

9. Regarding claim 3, Chong et al. discloses the first wafer is formed of glass (page 3, lines 8-9).

10. Regarding claim 5, Chong et al. discloses the etch step used to form cavities in the first major surface of the first wafer is an anisotropic etch (page 8, lines 23-24).

11. Regarding claim 16, Chong et al. discloses the beams are anchored to the wafer (page 3, line 11).

12. Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chong et al. (WO 03/065050 A2) in view of McNeil et al. (U.S. 6,845,670 B1) as applied to claim 1 above, and further in view of Lee (U.S. 4,934,190).

13. Regarding claim 4, Chong et al. and McNeil et al. discloses the first wafer is formed of glass (Chong et al., page 3, lines 8-9) but do not specify that it be made of borosilicate glass. However, Lee discloses the use of a substrate comprising borosilicate glass in the manufacture of a sensor device (col 5, lines 60-63). Such a material is preferential since it is a relatively less expensive material and has a low thermal coefficient of expansion, which minimizes warping due to high temperature bonding. Therefore, it would have been obvious to one having ordinary skill in the art at

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the time the invention was made to modify the invention of Chong et al. and McNeil et al. with a first wafer of borosilicate glass, as taught by Lee so as to use a less expensive substrate material and minimize possible warping.

14. Regarding claim 5, Chong et al. discloses the etch step used to form cavities in the first major surface of the first wafer is an anisotropic etch (page 8, lines 23-24).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kumagai et al. (U.S. 2003/0217597 A1) discloses a method of manufacturing an accelerometer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reema Patel whose telephone number is 571-270-1436. The examiner can normally be reached on M-F, 8:00-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RSP
6/6/07

SCOTT B. GEYER
PRIMARY EXAMINER

SCB 6/6/07